What is claimed is:

1.   A method for configuring a network element in a computer network, the method comprising:

(a)   receiving an instruction to configure a network element in a computer network;

(b)   converting the instruction into a form understood by the network element; and

(c)   sending the converted instruction to the network element.

2.   The invention of Claim 1 further comprising receiving at least one additional instruction to configure at least one additional network element in the computer network, converting the at least one additional instruction into a form understood by the at least one additional network element, and sending the converted at least one additional instruction to the at least one additional network element.

3.   The invention of Claim 2, wherein the first-mentioned network element and the at least one additional network element are same type devices from different vendors.

4.   The invention of Claim 2, wherein the first-mentioned network element and the at least one additional network element are different type devices from different vendors.

5.   The invention of Claim 2, wherein the first-mentioned network element and the at least one additional network element are different type devices from same vendors.

6.   The invention of Claim 2, wherein the first-mentioned instruction and the at least one additional instruction are arranged in a first order, and wherein the invention further comprises:

determining whether the first-mentioned instruction and the at least one additional instruction will result in an invalid network state of the computer network if implemented in the first order; and

if the first-mentioned instruction and the at least one additional instruction will result in an invalid network state of the computer network if implemented in the first order, rearranging the first-mentioned instruction and the at least one additional instruction into an order that will not result in an invalid network state if implemented.

7. The invention of Claim 6, wherein the determining and rearranging acts are performed before the first-mentioned instruction and the at least one additional instruction are converted.

8. The invention of Claim 6, wherein the determining and rearranging acts are performed after the first-mentioned instruction and the at least one additional instruction are converted.

9. The invention of Claim 1 further comprising generating the instruction to configure the network element based on a traffic demand of the computer network.

10. The invention of Claim 9, wherein the instruction to configure the network element is generated based on a predicted traffic demand of the computer network.

11. The invention of Claim 9, wherein the traffic demand is determined at least in part from traffic data from a plurality of network elements in the computer network.

12. The invention of Claim 9, wherein the traffic demand is determined at least in part from traffic data predicted from a plurality of network elements in the computer network.

13.   The invention of Claim 9, wherein the traffic demand is determined at least in part from a request.

14.   The invention of Claim 13, wherein the request is expressed in terms of one or more of the following: bandwidth, latency, jitter, loss rate, protection type, and burst size.

15.   The invention of Claim 13, wherein the request is expressed using RSVP.

16.   The invention of Claim 13, wherein the request is expressed using RSVP-TE.

17.   The invention of Claim 13, wherein the request is expressed using a user-to network interface.

18.   The invention of Claim 13, wherein the request expresses a service level agreement.

19.   The invention of Claim 18, wherein the request expresses a service level agreement that allows a customer to reserve a private path

20.   The invention of Claim 19, wherein the request expresses a service level agreement that allows a customer to reserve a protection path in addition to the private path.

21.   The invention of Claim 9, wherein the traffic demand is determined at least in part from a policy system.

22. The invention of Claim 21, wherein the policy system comprises a policy expressed in terms of one or more of the following: bandwidth, latency, jitter, loss rate, protection type, and burst size.

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23. The invention of Claim 21, wherein the policy system is implemented using COPS.

24. The invention of Claim 21, wherein the policy system expresses a service level agreement that allows a customer to reserve a private path

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25. The invention of Claim 21, wherein the policy system expresses a service level agreement that allows a customer to reserve a protection path in addition to the private path.

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26. A system for configuring a network element in a computer network, the system comprising:

a network element in a computer network; and

a processor operative to receive an instruction to configure the network element, convert the instruction into a form understood by the network element, and send the converted instruction to the network element.

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27. The system of Claim 26 further comprising at least one additional network element in the computer network, and wherein the processor is further operative to receive at least one additional instruction to configure the at least one additional network element, convert the at least one additional instruction into a form understood by the at least one additional network element, and send the converted at least one additional instruction to the at least one additional network element.

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28.   The invention of Claim 27, wherein the first-mentioned network element and the at least one additional network element are same type devices from different vendors.

29.   The invention of Claim 27, wherein the first-mentioned network element and the at least one additional network element are different type devices from different vendors.

30.   The invention of Claim 27, wherein the first-mentioned network element and the at least one additional network element are different type devices from same vendors.

31.   The invention of Claim 27, wherein the first-mentioned instruction and the at least one additional instruction are arranged in a first order, and wherein the processor is further operative to:

determine whether the first-mentioned instruction and the at least one additional instruction will result in an invalid network state of the computer network if implemented in the first order; and

if the first-mentioned instruction and the at least one additional instruction will result in an invalid network state of the computer network if implemented in the first order, rearrange the first-mentioned instruction and the at least one additional instruction into an order that will not result in an invalid network state if implemented.

32.   The invention of Claim 31, wherein the processor is operative to perform the determining and rearranging acts before converting the first-mentioned instruction and the at least one additional instruction.

33.   The invention of Claim 31, wherein the processor is operative to perform the determining and rearranging acts after converting the first-mentioned instruction and the at least one additional instruction.

34.   The invention of Claim 26 further comprising an additional processor operative to generate the instruction to configure the network element based on a traffic demand of the computer network.

35.   The invention of Claim 34, wherein the instruction to configure the network element is generated based on a predicted traffic demand of the computer network.

36.   The invention of Claim 34, wherein the traffic demand is determined at least in part from traffic data from a plurality of network elements in the computer network.

37.   The invention of Claim 34, wherein the traffic demand is determined at least in part from traffic data predicted from a plurality of network elements in the computer network.

38.   The invention of Claim 34, wherein the traffic demand is determined at least in part from a request.

39.   The invention of Claim 38, wherein the request is expressed in terms of one or more of the following: bandwidth, latency, jitter, loss rate, protection type, and burst size.

40.   The invention of Claim 38, wherein the request is expressed using RSVP.

41.   The invention of Claim 38, wherein the request is expressed using RSVP-TE.

42.   The invention of Claim 38, wherein the request is expressed using a user-to network interface.

43. The invention of Claim 38, wherein the request expresses a service level agreement.

44. The invention of Claim 43, wherein the request expresses a service level agreement that allows a customer to reserve a private path.

45. The invention of Claim 44, wherein the request expresses a service level agreement that allows a customer to reserve a protection path in addition to the private path.

46. The invention of Claim 34, wherein the traffic demand is determined at least in part from a policy system.

47. The invention of Claim 46, wherein the policy system comprises a policy expressed in terms of one or more of the following: bandwidth, latency, jitter, loss rate, protection type, and burst size.

48. The invention of Claim 46, wherein the policy system is implemented using COPS.

49. The invention of Claim 46, wherein the policy system expresses a service level agreement that allows a customer to reserve a private path

50. The invention of Claim 46, wherein the policy system expresses a service level agreement that allows a customer to reserve a protection path in addition to the private path.

51.   A system for configuring a network element in a computer network, the system comprising:

means for receiving an instruction to configure a network element in a computer network;

means for converting the instruction into a form understood by the network element; and

means for sending the converted instruction to the network element.